

UTILITY APPLICATION  
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# DISTRIBUTED INTERACTIVE CONTENT SYSTEM

## Cross-Reference to Related Application

5 This application claims the priority benefit of U.S. provisional application serial no. 60/171,030, filed December 16, 1999, of the same title and by the same named inventor. The contents of that application are incorporated herein by reference.

## Background Of The Invention

### 10 1. Field of the Invention.

The present invention relates to network-based communication structures.

More particularly, the present invention relates to systems for organizing and coordinating content associated with selectable content fields and making that content readily available and modifiable, possibly with some restrictions, by  
15 content viewers. Specifically, the present invention is a transparent system to enable computer-device-based users to interact with other users and network hosts, such as Internet web sites, to access the content and interact with it.

### 2. Description of the Prior Art.

The way the amorphous computer-interconnection array identified by the  
20 generic term "the Internet" currently operates is relatively inefficient. An individual with a computer and modem, wireless, or other transceiving linkage sub-system, may connect to other computing systems having similar linkage sub-systems by way of one or more network portals or hosts. In this way, any information of interest may be passed from one computing device to another. In fact, any one  
25 computer device location can operate as a unique information provider site. The type of information that may be made available via Internet connections is almost limitless. The information may be based in technology, education, culture, entertainment, commerce, etc. It may be public or relatively private. In all cases, however, the objective is to convey information from one location to another. As  
30 a result, all computing networks may experience similar limitations and problems to varying degrees.

Unfortunately, with all the disparate sources for computer-deliverable information, there is often considerable difficulty in discovering particular information of interest. There are many Internet-/web-searching systems, such as

5 Yahoo™, Google™, and HotBot™, among others, intended to facilitate information discovery. They all generally require the user to input certain key search words and/or phrases intended to elicit specific web site addresses apparently related to such search words or phrases. It is a fairly common occurrence for the user to be bombarded with dozens, hundreds, and sometimes

10 thousands of returned web site addresses to review. Some of the search results may be duplicative, they may be completely unrelated to the search request, and they can otherwise make the search effort fruitless or unacceptably tedious. For these reasons, among others, the Internet is presently comprised of relatively isolated pockets of information of varying degrees of value.

15 There are two primary problems associated with the current interactive model of the Internet and the search failings noted above. First, users may be less inclined to communicate via such computer linkages absent knowledge of a specific web site address for a particular information supplier of interest. They may be frustrated by either the inability to find a site of interest, or by the

20 overwhelming number of sites returned by a search. This problem may be of particular concern when dealing with already skeptical users. Second, the suppliers of web-based information may be unable to communicate effectively with information seekers having an interest in the information made available by such suppliers. For example, a new supplier of surgical instruments may wish to

25 communicate to surgeons information regarding new devices available from the supplier. Absent common knowledge of the supplier's address, many surgeons having access to the Internet can easily miss the source of information regarding the new devices.

In addition to the difficulty in wading through the wide array of web site

30 locations, there is the inconvenience associated with moving from one site to another. Currently, if one discovers a plurality of web site addresses in a search,

the user must jump back and forth between a selected site and the original search location, or from one site of interest to another, in order to collect all of the information of interest. The process can be relatively slow and subject to incomplete linkages from one to site to another. The causes of such obstacles  
5 can be as varied as the number of individual service providers in existence.

One way for computer-based interaction among savvy computer users having common interests is the Internet-based forum. A service provider or host may develop an interactive forum web site that acts much like a clearinghouse of information transmitted and received by site users. The forum is based on  
10 common interests of its users and it allows those users, in a relatively limited way, to exchange information with one another on subjects of common interest. The host acts as a conduit or portal and, sometimes, a filter for the conveyance of the information between the forum site members. Members submit questions or statements for review by other members. Subsequent responses by viewing  
15 members are attached to each question/statement so that interactions are logged on in a cumulative manner for all members to observe. The forum is established on one host site and the interested users must specifically access that particular site to view the content thereof.

Entities that establish web sites may include localized forums for their  
20 visitors in the hope that traffic to their sites will expand. In order to gain visitors, it may be necessary for such entities to purchase access to other forums, or to establish links to other hosts they believe are visited by relevant users. This can be a hit-or-miss and costly proposition. Additionally, or alternatively, such entities must provide enough "content" (useful information) on their sites to ensure  
25 adequate visitor traffic. Developing and/or purchasing such content (postings, graphics, source information, articles, etc.) can also be costly, as well as time consuming. Moreover, it is in a host's interest to ensure that the content be updated frequently to ensure retention of repeat visitor traffic. Most hosts do not have the time, capacity, or capability to update content information, particularly at  
30 the rate site viewers may expect.

In general, forums can be efficient ways to communicate information, raise

questions on matters of interest to the forum members, etc. Again, however, difficulties in tracking down informational sites of interest apply as well to forum interfaces. Further, the information available from one forum may be out-dated, inaccurate, incomplete, etc. In addition, it is to be noted that there are pockets of  
5 forums, many duplicating the same areas of interest, that are not organized in any easily accessible fashion. Such dispersed forums, their users, and their providers would benefit greatly from coordination of information access sites.

The disparate array of web site hosts and services that enable network users to access information of interest naturally leads to limitations regarding the  
10 complete, accurate, and efficient exchange of that information. As a result, users may be frustrated and less inclined to seek such information by way of networks, particularly including the Internet. Importantly, this arrangement also limits information providers' ability to access audience members of interest.

Therefore, what is needed is a system for effectively distributing  
15 information via computer networking. What is also needed is a system through which content of interest can be accessed by information seekers or site users through information hosts of choice. Further, what is needed is an organized content-based distribution system that establishes for hosts sufficient up-to-date content to introduce into their own web sites. Still further, what is needed is such  
20 a system that allows visitors to access through any associated host site common content, which content may be modified by any party accessing the content.

### **Summary Of The Invention**

It is an object of the present invention to provide a system for distributing  
25 uniform information or content via computer networking, whether that network is relatively localized, spread throughout specified regions, or part of the global computer network. It is also an object of the present invention to provide a system through which content of interest can be accessed by information seekers or users through selectable information portals or hosts. Further, it is an object of  
30 the present invention to provide an organized content-based distribution system that establishes for hosts sufficient up-to-date content to introduce into their own

web sites. Still further, it is an object of the present invention to provide a system that allows visitors to access through any associated host site common content. That content may be modified by, or otherwise made interactive with, users.

These and other objects are achieved in the present invention through the  
5 formation of a distributed interactive content system. The system includes means, primarily software, to enable storage, distribution, interaction, and manipulation of content (also referred to herein as information) associated with essentially any subject matter of interest. By way of example only, the content may be forum-based communications among users, which communications are  
10 archivable and are distributable to any user interested in accessing it. The content may also be any other type of information that may be of interest to users including, but not limited to, job postings, news, supplier data, and so on.

The system links users together through host sites to the content such that anyone interested in accessing the content sees common content on any one of  
15 one or more subjects of interest. That is, the content is uniform and that which is observed via one host is the same as the content observed via another host. That is distinct from what exists today, wherein there may be pockets of content sources, many of which are related to the same subject but which do not have exactly the same content. A central transactional server is used to effect the  
20 replication of the uniform content to all sites that may be accessed by users. The transactional server may also provide for storage of the content, either at a single location on a single computing device. Alternatively, it may be decentralized in that it may effect retention and accessing of portions of content via one or more individual sites. The transactional server may optionally be a host as well.

25 The software of the present invention is configured to enable retention of the content, to enable its access by one or more portals or hosts, and to enable users to access the content from one or more hosts. The software is configured to permit users to access those portions of the content of one or more particular subject matters of interest from one or more hosts that may include other users as  
30 well as the transactional server. As indicated, the transactional server may be, in effect, a single computing device. Alternatively, it may be any networking scheme

or suitable form of information exchange. The software is configured to enable content accessors or users to interact with the content, such as by communication with other users via hosts, and to modify the content by adding, changing, or removing portions of the content. When an accessor manipulates that content, the content is essentially immediately updated by replication so that all other users will be able to observe the change.

In one embodiment of the invention, the software is configured to make it possible to integrate content, preferably managed by a primary regulator such as the primary transactional server, on or within the context of, a host's established web site. By all appearances, the host site appears as established by the host and it further includes the uniform content. The content, such as a forum of particular subject matter for example, is accessed by a user through a host site without openly appearing to pass the user through to the primary server. Instead, the user appears to remain at the third party's site to access the content. Regardless of the particular site from which the user begins, he/she can access the content of interest. Any other hosts associated with or subscribing to that particular content may optionally be accessed by that user upon engaging with or interacting with the content. In that way, users having interest in particular subject matter are able to communicate with others having the common interest.

As earlier noted, in addition to providing a means to access common content through any associated host, the distributed interactive content system of the present invention permits content visitors or users to interact with the content, exchange information with the content, and otherwise aid in the evolution of the content. That updated or modified content is immediately accessible to all other content users. Therefore, site hosts have a site that is updated each time the content is accessed and modified by any other party at any other host. The site host can therefore be sure that it provides the most up-to-date information associated with the content.

It is to be understood that the uniform content enabled by the software of the present invention may include, but is not limited to, forum exchanges, a library of articles, directories, news services, publications, notices, on any subject matter

that may be of interest to any user. The software is configured such that the content, whether centralized, distributed, or some combination thereof, is searchable and preferably updated essentially immediately to ensure current information for users. As noted, that updating occurs when users accessing the content via a host post messages, responses, or in general terms, information. That new information is then reflected by the system to all hosts upon posting.

As a business tool, the distributed interactive content system of the present invention provides web hosts with access to content of particular interest to that host's visitors. For a relatively small investment, these hosts are readily accessible to relevant users. The content that may appear as a component of a host's site gives that host immediate access to a wealth of up-to-date information that would be difficult for the host to create alone. In addition to being a content accessing and manipulation mechanism, the software of the present invention is application related. Specifically, it is configured to permit a site host to administer, modify, or otherwise filter the content accessed and observed via that site. The software enables a host to require subscription for access to the site containing the content and/or to regulate what sort of content changes can be observed via that site. That is, a host can block entry of a content exchange onto that particular site or the posting of that entry once received. For example, if the content is a forum for an exchange among users, the software enables the host of a site through which that forum may be accessed to block entry on that particular site, any message that may be disparaging to the site. Alternatively, that host may block posting of a disparaging message. In effect, the host can filter out the transmission of such a message via its site, although not via other sites it does not administer. Additionally, the software is configured to enable a host to generate its own content set, or a content subset of a more expansive content set on any subject matter it desires.

The present invention further optionally provides a system to improve the process by which users discover information associated with a directory or list. Currently, a typical network-based search, such as through Google™ or Altavista™, for example, returns a plurality of site "hits" that requires the user to



access each site, evaluate the site, and then return to the search results for the next site to evaluate. A "robot" effects the search and returns to the user's browser a directory or list that should be associated with the search request. Unfortunately, there is a reasonable likelihood that the same site will be returned  
5 more than once or that completely irrelevant sites will be discovered and unnecessarily observed. This can be terribly time consuming and frustrating. Moreover, when a list object is accessed, observation of the list is not possible.

The present invention facilitates access to relevant information associated with a directory or list of objects developed by search or otherwise. Specifically, it  
10 provides a progressive directory access scheme. The improved directory system of the present invention includes a very brief descriptor of each object of the list. That brief descriptor may be text, graphics, or a combination thereof that gives an accurate description of the object while keeping the list in view. The brief descriptor is preferably provided by the posters of the objects on the list rather  
15 than by the varied outputs of a robot search. The very brief descriptor may be applied directly adjacent to the list object or it may be observed in a pop-up window when a cursor is dragged over it.

If the very brief descriptor triggers the accessor's or user's interest, the system provides a second-level summary descriptor that provides further  
20 information regarding an object of interest. The summary description, which may be a mini home page, is preferably provided by the source of the object of the list or directory of interest. It is further preferably provided in a condensed uniform form so that users can expect to learn the same type of information for each object of the list. All mini home pages launch at essentially the same rate, unlike  
25 existing browser-based processes wherein some object sites may be slower than others. Yet further, the improved directory system of the present invention is preferably configured so that multiple summary descriptions for a set of objects may be launched without loss of the ability to view the list. The mini home page may simply be a clipboard or a single-, or multi-page website-appearing page.  
30 The summary may be in the form of graphics, data, contact information, or anything else the source wishes to present to accessors. If and only if the system

user remains interested in the named source, it can then access that source's site directly, such as through the mini home page. Clearly, this is an improved technique to enable users to access sites of interest only after reasonably certainty that the site is relevant

5 In the context of the present invention, the source of a particular object associated with a directory, a list or, more generally, content may be identified in a manner that provides users with information about the source of the object. For example, in the context of a forum, a posting that is a response to a prior posting may be tagged with a via link. The via link identifies the source or host through  
10 which the posting was generated. That via link may be configured to enable a user to learn information, such as by way of the very brief descriptor described above, about the source of the posting. That via link tagging may optionally further provide a way to access a mini home page associated with the source. In sum, the via link identifies the source of information related to the content. The  
15 system of the present invention generates such a source identifying via link when a posting is made to the unitary content via that source.

These and other advantages of the present invention will become apparent upon review of the following detailed description, the accompanying drawings, and the appended claims.

## 20 **Brief Description of the Drawings**

FIG. 1 is a simplified diagrammatic representation of the primary components of the distributed interactive content system of the present invention.

FIG. 2 is a simplified diagrammatic representation of the transactional  
25 server of the present invention.

FIG. 3 is a flow chart of the directory facilitator of the present invention.

FIG. 4 is a screen display of an exemplar mini home page generated by the website and mini-home page development system of the present invention.

FIG. 5 is a simplified block diagram of an optional filtering mechanism of  
30 the system of the present invention to enable host sites to administer the display of content information via their sites.

FIG. 6 is a screen display of an exemplar forum listing showing a via link to identify a posting source.

### Detailed Description Of The Preferred Embodiments Of The Invention

5 A first embodiment of the distributed interactive content system **10** of the present invention is shown in FIG. 1. Each of the components to be described herein is generally commercially available or is readily programmable by those skilled in the art. The system **10** involves the coupling of those components and associated software to enable interaction resulting in an accessible interactive  
10 content that may be accessed by any interested party, which party may modify the content through conventional computer-device-based interaction methods.

A primary component of the system **10** is a computing device that acts as a central network station or transactional server **20**. The server **20** is preferably a computing device having mass storage capability, means for carrying out  
15 software-based instructions, and communicating systems for the exchange of signal transmissions among the server **20** and its users. The server **20** may be established as a single device or a plurality of such devices coupled together in a distributed networking scheme. A central station or server may be employed to archive information associated with the content. It may also be employed to  
20 enable indexing of the content for searching. Alternatively, archiving may be achieved in a distributed format in that portions of content may be housed on one or more user and/or host sites, the accessing of which would be controlled through the transactional server **20**.

The server **20** may be programmed to receive and store information related  
25 to one or more fields of interest provided by, and/or received from, users **30** through hosts **40**. The number of users, represented as stations  $U_1, U_2, \dots, U_n$ , coupled to the server **20** is only limited by the network configuration through which they are coupled. Similarly, the number of hosts, represented as stations  $H_1, H_2, \dots, H_n$ , coupled to the server **20** is again only limited by the network  
30 configuration through which they are coupled. The users **30** and the hosts **40** are linked by conventional means including, but not limited to copper cable, optic

cable, and wireless interfaces. Of course, the linkage may be through television and telephony as well as computing devices such as personal computers, personal digital assistants, and wireless telephony devices such as pagers, cellular phones, and the like. It is not limited solely to the types of interfacing devices enumerated herein.

The user-host links are represented figuratively in FIG. 1 as links  $UL_1, UL_2, UL_3, \dots, UL_n$ , for links to the users **30**, and as host-server links  $HL_1, HL_2, \dots, HL_n$ , for links to the server **20**. The users **30** are effectively linked to the server **20**, as well as to each other and other hosts, if desired, through a selected host in a substantially transparent manner. That is, by substantially all appearances, a user remains on a selected host site while accessing the content that may be centralized at the server **20** or that may be accessed from a plurality of other sites via the server **20**.

The server **20** is preferably programmed to receive communications from the users **30** via the hosts **40**, to store information associated with those communications, and to transmit to the users **30** through the hosts **40** content information sought, subject to any security restrictions optionally imposed by a host. The server **20** may simply be a behind-the-scenes regulator of information transmission. It may also be a host and may further be associated with its own website. In that regard, it is to be noted that the hosts **40** themselves may or may not have their own websites.

A simplified representation of important components of the server **20** is shown in FIG. 2. The server **20** includes a central processing unit (CPU) **50**, a unitary content database **DB** including a plurality of subject matter subsets identified as subject databases  $SD_1, SD_2, SD_3, \dots, SD_n$ , and an optional web site and mini page development sub-system **60**. When content is created by the server **20** or received via the hosts **40**, it is transmitted to the database **DB** such that it is substantially automatically updated. Any of the users **30** accessing the server **20** through any of the hosts **40** substantially immediately views updated content. The arrangement of a searchable and accessible database that may be manipulated by interaction with the users **30** is known to those skilled in the art.

Making the uniform database **DB** accessible by all connected hosts **40** provides those hosts with up-to-date content the depth of which could not otherwise be created by an individual host alone. The subject databases may be populated with forums, libraries, lists, or any other sort of element associated with the subject matter of interest. They may be cross-referenced, linked, or otherwise affiliated. One or more subject databases and portions thereof may be accessed and displayed through any suitable host. The information is unified in a single collection that may be distributed to all users. The information may be displayed in a variety of ways, selectable by the server **20**, the users **30**, the hosts **40**, or any combination thereof. For example, some hosts may only want to show a portion and would therefore limit the display to that content it wishes to display.

The CPU **50** may be formed of a plurality of processing units near to, and remote from, one another. The information gathered by the CPU **50** is manipulated, organized and stored in the database **DB** in a manner that enables the users **30** and the providers **40** to interface with the station **20** to query it for retrieval of information. The manipulation of that information results in a unique database of content currently not available that is updated with each interaction and that is immediately available to all subscribing hosts. In effect, the server **20** is a routing, switching, data storage, and interface system. All communications with the various devices to which the server **20** is coupled may occur through wired or wireless, digital, analog, T1, T3, CAT5, frame-based data transport protocols, asynchronous mode transport protocols, or any other suitable electrical signal transport mechanism, or optical or propagated wave signal transport mechanism. That coupling is represented generically by port **PT** of the server **20** in FIG. 2. That coupling may include routing capabilities to enable the server **20** to provide web content to one or more of the hosts **40** for access by the users **30** and to enable interfacing of users **30** with one another through their hosts **40**.

An optional feature of the system **10** of the present invention designed to facilitate a search and evaluation of objects of interest accessible through a computer network is shown in FIG. 3. A search facilitator system **70** preferably configured substantially in software includes a means by which users **30** can

observe a directory or list of objects. The objects may be of anything one can contemplate users may be interested in learning about. That list may be generated by the server **20**, one or more of the hosts **40**, one or more of the users **30**, or any combination thereof. The system **70** has broader application to any  
5 directory not specifically associated with the system **10** of the present invention but any directory or list of objects a user may wish to consider.

As part of the process enabled by the system **70**, a user accesses a list of potential interest. A list of objects may be viewed, along with a very brief description of each object. The very brief description is preferably created by the  
10 source or a facilitator having some knowledge of the source. In one form of the system **70**, the very brief description for each object is of a uniform form. The very brief description may be automatically displayed adjacent to the object as part of the list. Alternatively, the very brief description may be observed in other  
15 ways, such as a pop-up window launched when a cursor is passed over a particular object that may be observed as part of the list displayed, or any other means that may be associated with the array of display mechanisms available.

With continuing reference to FIG. 3, a user seeing a very brief description that appears to indicate that the object is of interest, may access a longer summary description of the object. One such summary description may be  
20 represented by a mini home page such as is shown in FIG. 4. Finally, if the summary description provides the type of information leading the user to wish to explore the object in greater detail, the user may access the object, such as a source website, directly. That may be arranged by adding an address link to the summary description.

25 As noted in regard to FIGS. 2 and 3, the summary description of an object of interest may be established with a mini home page. That mini home page may be created through the mini page development system **60** of server **20** but is not limited thereto. However, if it is used, the system **60** is configured to produce a mini home page of uniform appearance that launches in a relatively uniform  
30 period of time, regardless of the particular object selected. In that way, it eliminates the deviations in launch times and summary information that occurs

when individual sources generate their own summaries and/or launching arrangements. The mini home page is preferably an exemplar of the source's own site but is not limited thereto. Formation of such a representation of a source is within the skill of website developers. An exemplar mini home page is

5 represented by the display of FIG. 4.

One optional feature of the software associated with the present invention is represented in FIG. 5. Specifically, the system may include application software to permit a host site to administer content displayed at its site. Two forms of such administration are shown in FIG. 5. First, information arriving to the

10 singular content associated with particular subject matter is provided by any one or more of a plurality of sources to the host site. The software of the present invention enables the host to evaluate whether the new information is suitable for display via its site. If not, that particular information is filterable so that it may not be observed via the host site. If the host deems the new information to be

15 acceptable, it can display the information. Second, the host may generate its own content information for posting. The host may make a determination that only certain users may access the information generated by the host and display accordingly. That determination may be based upon a requirement that interested users sign up as a subscriber to the site, for example.

As illustrated in FIG. 6, the source of a particular object associated with a list may be identified in a manner that provides users with information about the source of the object. For example, in the context of a forum, a posting that is a response to a prior posting may be tagged with a via link **100**. The via link **100** identifies the source or host through which the posting was generated. That via

20 link **100** may be configured to enable a user to learn information, such as by way of the very brief descriptor or the mini home page described above, about the source of the posting. The system of the present invention generates such a source identifying via link when a posting is made to the content via that source.

While the invention has been described with reference to a particular

30 example embodiment, it is intended to cover all modifications and equivalents as described in the following claims.